

**Exhibit A**  
**SCOPE OF WORK**

**TASK LIST**

<b>Task#</b>	<b>CPR</b>	<b>Task Name</b>
1	N/A	Contract Administration
2		Procure and Accept Delivery of Hydrogen Equipment
3	X	Engineering and Final Design
4		Construct Hydrogen Station
5		Data Collection and Analysis

**GLOSSARY / ACRONYMS**

<b>Acronym</b>	<b>Definition</b>
AB	Assembly Bill
ACT	Alameda-Contra Costa Transit District
ASME	American Society of Mechanical Engineers
CCM	Commission Contract Manager
CPR	Critical Project Review
GHG	Greenhouse Gas
MS	Microsoft
PO	Purchase Order

**Background**

The Alameda-Contra Costa Transit District (ACT) is one of the largest public transit operators in California, serving over 61 million passengers annually, with a fleet of more than 600 buses. ACT has been a strong advocate of fuel cell technology since 1999, successfully organizing a team of public and private partners to develop commercially viable, zero-emission solutions for heavy-duty transportation applications. This project has largely been motivated by community health improvements and quality-of-life benefits linked to zero tailpipe emissions and quiet electric-drive engines, and the global environmental benefits of utilizing sustainable sources of carbon-free renewable energy.

ACT has operated three hydrogen fuel cell buses since 2006, travelling more than 250,000 miles and carrying over 700,000 passengers. Although these buses are 8,000 pounds heavier than a comparable diesel bus, they have realized, on average, 60 percent better fuel economy.

As part of its “HyRoad” Program, funded by the National Fuel Cell Bus Program, ACT plans to demonstrate fleet-readiness for hydrogen fuel cell technology. ACT will partner with the San Francisco Bay Area’s largest bus transit operators (San Francisco Muni, Samtrans in the Peninsula, Golden Gate Transit in Marin, and Valley Transportation Authority in San Jose) to establish a truly regional program, representing the interests of

agencies with a combined fleet of more than 2,500 buses. ACT is adding 12 more fuel cell buses to its fleet, each weighing 5,000 pounds less than the first three buses and utilizing more advanced systems. Seven of the 12 additional buses have been delivered and five are currently in daily service. As of May 20, 2011, these five buses have logged more than 85,000 miles and carried in excess of 125,000 passengers. The coalition of transit partners is optimistic that it will be able to demonstrate that fuel cell technology can lead to a clean, sustainable future for public transport and the transportation industry.

This Agreement will enable ACT to build a new fueling station at ACT's operating division on Seminary Avenue in Oakland, California. The station will utilize Linde's proprietary ionic liquid compression system. The primary supply of hydrogen will be liquid hydrogen delivered by Linde and stored on site in a 9,000-gallon container. The liquid fuel will be vaporized, pressurized, and stored at 450-bar pressure in American Society of Mechanical Engineers (ASME) tubes, with a storage capacity of 360 kilograms. A third of the fuel supply will be derived from the electrolysis of water using a Proton Exchange Membrane electrolyzer powered by renewable electricity generated from biogas-fed stationary solid-oxide fuel cells. Two Linde dispensers will be installed at the operating division's fueling island, in line with existing diesel dispensers. This will enable ACT to replicate the fueling process and speed of a standard diesel bus.

Funding partners for this project include the California Energy Commission, California Air Resources Board, the Federal Transit Administration, and local Bay Area transit agencies. The cost of the entire project is approximately \$14.5 million.

While the operating division will initially support six fuel cell buses, the station has been designed to refuel up to 12 buses consecutively, and as many as 24 buses in a 24-hour period to accommodate future growth. This will provide ACT with the flexibility to move buses between divisions and to expand its fleet with the least impact on its fueling infrastructure. Once completed and operating, this will be the single largest hydrogen fueling station for transit buses in the United States.

Assembly Bill (AB) 118 (Núñez, Chapter 750, Statutes of 2007), created the Alternative and Renewable Fuel and Vehicle Technology Program (Program). The statute, subsequently amended by AB 109 (Núñez, Chapter 313, Statutes of 2008), authorizes the Energy Commission to, among other things, provide financial support for projects that:

- Develop and improve alternative and renewable low-carbon fuels;
- Expand fuel infrastructure, fueling stations, and equipment;
- Improve light-, medium-, and heavy-duty vehicle technologies; and
- Expand infrastructure connected with existing fleets, public transit, and transportation corridors.

Funding for this project is also consistent with the 2010-2011 Program Investment Plan.

### **Goal of the Agreement:**

The goal of this Agreement is to build a hydrogen fueling station at ACT's operating division on Seminary Avenue in Oakland that will distribute low-carbon, alternative fuels to be used by transit buses that serve the San Francisco Bay Area.

**Objectives of the Project:**

The objectives of this project are to:

1. Build a state-of-the-art hydrogen fueling station with a capacity of 360 Kg hydrogen per day and a green-powered, locally-distributed power system for transit fleet applications, and demonstrate their suitability to the transit industry in support of fuel cell bus operations.
2. Displace an estimated 175,000 gallons of diesel annually and reduce 600 metric tons of Greenhouse Gas (GHG) emissions each year. The GHG estimate is based on 1/3 of the fuel being produced with renewable biogas and the remainder being trucked in from a Southern California central steam methane reforming production facility.

**TASK 1 CONTRACT ADMINISTRATION**

This task includes the requirements for meetings, reporting, and subcontractors in the performance of the Scope of Work.

**MEETINGS****Task 1.1 Attend Kick-off Meeting**

The goal of this task is to establish the lines of communication and procedures for implementing this Agreement.

**The Contractor shall:**

- Attend a “kick-off” meeting with the Commission Contract Manager (CCM), the Commission Project Lead, the Contracts Officer, and a representative of the Accounting Office. The Contractor shall bring their Project Manager, Contracts Administrator, Accounting Officer, and others designated by the CCM and Commission Project Lead to this meeting. The administrative and technical aspects of this Agreement will be discussed at the meeting. Prior to the kick-off meeting, the CCM will provide an agenda to all potential meeting participants.

The administrative portion of the meeting shall include, but not be limited to, the following:

- Terms and conditions of the Agreement
- Invoicing procedures

The technical portion of the meeting shall include, but not be limited to, the following:

- The CCM's and the Commission Project Lead's expectations for accomplishing tasks described in the Scope of Work;
- Schedule of Deliverables (revise as necessary)
- CPRs (Task 1.2)
- Final Meeting (Task 1.3)

- Monthly Progress Reports (Task 1.4)
- Deliverables and Deliverable Due Dates (Task 1.5)
- Final Report (Task 1.6)
- Electronic File Format (Task 1.7)
- Manage Subcontractors (Task 1.8)
- Technical Tasks (Tasks 2 through 5), including a discussion of the station conceptual design. The Contractor shall bring three copies of the conceptual design specifications and drawings to the meeting.

The CCM shall designate the date and location of this meeting.

**Contractor Deliverables:**

- Conceptual design specifications and drawings

**CCM Deliverables:**

- Updated Schedule of Deliverables

**Task 1.2 Critical Project Review (CPR) Meetings**

The goal of this task is to determine (1) if the project should continue to receive Energy Commission funding to complete this Agreement and (2) if any modifications to the tasks, deliverables, schedule or budget are needed.

CPRs provide the opportunity for frank discussions between the Energy Commission and the Contractor. CPRs generally take place at key, predetermined points in the Agreement, as determined by the CCM and Commission Project Lead and as shown in the Task List above. However, the CCM and Commission Project Lead may schedule additional CPRs as necessary, with the additional costs borne by the Contractor.

Participants include the CCM, Commission Project Lead, and the Contractor, and may include the Commission Contracts Officer, the Fuels and Transportation Division/Emerging Fuels and Technologies Office Program Team Lead, and other Energy Commission staff and management selected by the CCM and Commission Project Lead to provide support to the Energy Commission.

**The CCM and Commission Project Lead shall:**

- Determine the location, date and time of each CPR meeting with the Contractor. These meetings generally take place at the Energy Commission, but they may take place at another location.
- Send the Contractor the agenda and a list of expected participants in advance of each CPR.
- Conduct and make a record of each CPR meeting. One of the outcomes of this meeting will be a schedule for providing the written determination described below.
- Determine whether to continue the project, and if continuing, whether or not to modify the tasks, schedule, deliverables and budget for the remainder of the Agreement, including not proceeding with one or more tasks. If the CCM and Commission Project Lead conclude that the project needs a formal amendment or

that satisfactory progress is not being made and the project needs to be ended, these conclusions will be referred to the Commission's Transportation Policy Committee for its concurrence.

- Provide the Contractor with a written determination in accordance with the schedule. The written response may include a requirement for the Contractor to revise one or more deliverable(s) that were included in the CPR.

**The Contractor shall:**

- Prepare a CPR Report for each CPR that discusses the progress of the Agreement toward achieving its goals and objectives. This report shall include recommendations and conclusions regarding continued work of the projects. Submit these documents to the CCM and Commission Project Lead at least 15 working days in advance of each CPR meeting.
- Present the required information at each CPR meeting and participate in a discussion about the Agreement.

**Contractor Deliverables:**

- CPR Report(s)

**CCM and Commission Project Lead Deliverables:**

- Agenda and a List of Expected Participants
- Schedule for Written Determination
- Written Determination

**Task 1.3 Final Meeting**

The goal of this task is to present the findings, conclusions, and recommendations resulting from this agreement and to discuss any administrative agreement closeout issues.

**The Contractor shall:**

- Meet with the Energy Commission to discuss the technical and administrative aspects of the agreement. During the technical portion of the meeting, the Contractor shall present the project findings, conclusions, and recommended next steps, if any. The administrative portion of the meeting shall include a discussion of final invoicing, release of retention, and other administrative or contractual items, as determined by the CCM. This meeting will be attended by the Contractor, the CCM, and the Commission Project Lead. The CCM will determine any additional appropriate meeting participants. The final meeting must be completed before the end of the term of this Agreement.
- Prepare written documentation of meeting agreements and all pertinent information.
- Prepare a schedule for completing the closeout activities for this Agreement.

**Deliverables:**

- Written documentation of meeting agreements and all pertinent information
- Schedule for completing closeout activities

## REPORTING

### Task 1.4 Monthly Progress Reports

The goal of this task is to periodically verify that satisfactory and continued progress is made towards achieving the objectives of this Agreement.

#### The Contractor shall:

- Prepare monthly progress reports which summarize all Agreement activities conducted by the Contractor for the reporting period, including an assessment of the ability to complete the Agreement within the current budget and any anticipated cost overruns. Each progress report is due to the CCM and Commission Project Lead within 15 calendar days after the end of the reporting period. The CCM will provide the template for the monthly progress report.

#### Deliverables:

- Monthly Progress Report(s)

### Task 1.5 Deliverables and Deliverable Due Dates

The goal of this task is to specify the general requirements for deliverables and the deliverable due dates. When creating reports, the Contractor shall use and follow, unless otherwise instructed in writing by the CCM, the latest version of the Consultant Reports Style Manual published on the Energy Commission's web site:

[http://www.energy.ca.gov/contracts/consultant\\_reports/index.html](http://www.energy.ca.gov/contracts/consultant_reports/index.html)

#### The Contractor shall:

- If the Schedule of Deliverables and Due Dates requires revision after the execution of the Agreement, the revised dates cannot go beyond the term end date of the Agreement. The Contractor shall work with the CCM to come to an agreement on new deliverable due dates. The CCM shall issue the revised Schedule of Deliverables and Due Dates to the Contractor and to the Contracts Office.
- If directed to submit a draft deliverable in this Scope of Work, submit the draft to the CCM for review and comment in accordance with the approved Schedule of Deliverables and Due Dates.
- Provide each draft deliverable to the CCM in electronic format. The CCM will provide written comments back to the Contractor on the draft deliverable. The Contractor shall review the comments and discuss any problematic recommended changes to each draft with the CCM.
- Once agreement has been reached on the draft, the Contractor shall submit the final deliverable to the CCM. Each final deliverable shall be delivered to the CCM as one original, reproducible, 8 ½" by 11", and camera-ready master in black ink. Illustrations and graphs shall be sized to fit an 8 ½" by 11" page, readable if printed in black and white. In addition, the Contractor shall deliver an electronic copy (CD ROM or memory stick or as otherwise specified by the CCM) of the full text in Microsoft Word (.doc). The CCM shall provide written approval of the final deliverable within 30 calendar days of receipt.

### **Task 1.6 Final Report**

The goal of this task is to prepare a comprehensive written Final Report that describes the original purpose, approach, results and conclusions of the work done under this Agreement. The Final Report must also include the data collected and analyses performed in Task 5 of this Agreement.

The CCM and Commission Project Lead will review and approve the Final Report. The Final Report must be completed on or before the termination date of the Agreement.

The Final Report shall be a public document. If the Contractor has obtained confidential status from the Energy Commission and will be preparing a confidential version of the Final Report as well, the Contractor shall perform the following subtasks for both the public and confidential versions of the Final Report.

#### **Task 1.6.1 Final Report Outline**

##### **The Contractor shall:**

- Prepare a draft outline of the Final Report.
- Submit the draft outline of Final Report to the CCM and Commission Project Lead for review and approval. The CCM and Commission Project Lead will provide written comments back to the Contractor on the draft outline. Once agreement has been reached on the draft, the Contractor shall submit the final outline to the CCM and Commission Project Lead. The CCM and Commission Project Lead shall provide written approval of the final outline within 5 working days of receipt.

##### **Deliverables:**

- Draft Outline of the Final Report
- Final Outline of the Final Report

#### **Task 1.6.2 Final Report**

##### **The Contractor shall:**

- Prepare the Draft Final Report for this Agreement in accordance with the approved outline.
- Submit the Draft Final Report to the CCM for review and comment. The CCM will provide written comments to the Contractor. The Contractor shall review the comments and discuss any problematic recommended changes with the CCM.
- Prepare and submit the Final Report.

##### **Deliverables:**

- Draft Final Report
- Final Report

### **Task 1.7 Electronic File Format**

The goal of this task is to unify the formats of electronic data and documents provided to the Energy Commission as contract deliverables. Another goal is to establish the computer platforms, operating systems and software that will be required to review and approve all software deliverables.

#### **The Contractor shall:**

- Deliver documents to the CCM and Commission Project Lead in the following formats:
  - Data sets shall be in Microsoft (MS) Access or MS Excel file format.
  - PC-based text documents shall be in MS Word file format.
  - Documents intended for public distribution shall be in PDF file format, with the native file format provided as well.
  - Project management documents shall be in MS Project file format.
- Request exemptions to the electronic file format in writing at least 90 days before the deliverable is submitted.

#### **Deliverables:**

- A letter requesting exemption from the Electronic File Format (if applicable)

## **SUBCONTRACTORS**

### **Task 1.8 Manage Subcontractors**

The goal of this task is to specify the Contractor's responsibilities in using subcontractors under this agreement.

#### **The Contractor shall:**

- Manage and coordinate subcontractor activities. The Contractor is responsible for the quality of all subcontractor work and the Energy Commission will assign all work to the Contractor. If the Contractor decides to add new subcontractors, it shall 1) submit a draft competitive bid document to the CCM for review and approval prior to release of solicitation, 2) issue competitive solicitation and obtain at least three bids, 3) notify the CCM upon award who will follow the Energy Commission's process for adding or replacing subcontractors, 4) submit a copy of the subcontract and subcontractor budget to the CCM for review, and 5) comply with any other terms and conditions of this Agreement.
- For each subcontractor working on this Agreement, certify that the subcontractor has been selected under a bidding process that obtained at least three bids from responsible bidders.

#### **Deliverables:**

- Draft competitive bid document(s)
- Notification of new subcontractor(s)
- Copy of subcontract(s)
- Subcontractor budget(s)
- Subcontractor certification(s)



## **TECHNICAL TASKS**

### **TASK 2 PROCURE AND ACCEPT DELIVERY OF HYDROGEN EQUIPMENT**

The goals of this task are to procure and accept delivery, to ensure fit of the station equipment based on the existing conceptual design equipment specifications, and to test the equipment upon installation. The equipment needed for this hydrogen fueling station includes but is not limited to: Liquid tank, vaporizers, compressors, piping, valves/fittings, control units, chillers, dispenser assembly, a canopy, communication electronics, signage, light fixtures, fire detectors and other safety equipment.

#### **The Contractor shall:**

- Negotiate a Schedule of Values and Deliverables for the equipment and provide the resulting Schedule of Values and Deliverables to the CCM.
- Prepare and issue Purchase Orders (POs) for all equipment for this Agreement. Provide copies of the POs to the CCM.
- Accept delivery of all hydrogen equipment. Provide receipt documents (packing slips and delivery notes) indicating delivery and acceptance of equipment in accordance with the POs to the CCM.
- Provide copies of warranty documents for all equipment to the CCM.
- Test station equipment after installation (Task 4) to ensure proper operation. Provide written notification upon successful completion of testing to the CCM.

#### **Deliverables:**

- Schedule of Values and Deliverables
- Copies of POs
- Copies of receipt documents
- Copies of warranty documents
- Notification of testing

### **TASK 3 ENGINEERING AND FINAL DESIGN**

The goal of this task is to complete the engineering and final design of the station based on the conceptual design and specifications of the equipment selected for the project.

#### **The Contractor shall:**

- Complete the engineering and final design of the station including detailed site plans, specifications, and final drawings showing the layout and locations of the station components such as the liquid hydrogen storage tank, compressors, vaporizers, and dispenser unit. The design shall also specify, in detail, how the components of the station interconnect and fit into the site.
- Submit the detailed plans and specifications to the CCM.
- Submit a schedule for obtaining necessary permits. Inform the CCM of any changes to the schedule throughout the Agreement. Failure to obtain any necessary permits may result in an additional CPR (see Task 1.2).

- Complete all necessary site permitting documents including building permits and submit a copy of the permit set to the CCM. Permitting and planning approval shall be based on the detailed site plans.
- Prepare a CPR report and attend the CPR meeting (see Task 1.2).

**Deliverables:**

- Copy of detailed plans and specifications
- Schedule for obtaining permits
- Copy of permit set
- CPR report

**TASK 4 CONSTRUCT HYDROGEN STATION**

The goal of this task is to construct the hydrogen station based on the detailed plans and specifications developed under Task 3.

**The Contractor shall:**

- Prepare a construction Gantt chart and submit it to the CCM for review and approval.
- Construct and install the hydrogen station, including:
  - Removal or relocation of any existing appurtenances that impact desired equipment locations
  - Excavation of existing asphalt
  - Pouring foundations for tanks and related equipment such as canopy, fuel island, dispenser, fire walls (if deemed necessary), and screen walls
  - Civil construction and trench work to support fuel piping installations, power communication, alarms, canopy installation, and signage
  - Installation of all equipment, including safety systems, necessary PC software, power supply, and lighting.
- Prepare and submit a Notice of Station Construction Completion. This notice shall include verification of the completed station construction and photographs of the station and major equipment components.

**Deliverables**

- Draft Gantt chart
- Final Gantt chart
- Notice of Station Construction Completion

**TASK 5 DATA COLLECTION AND ANALYSIS**

The goal of this task is to collect data on production, feedstocks, operation, fueling, fuel quality, maintenance, safety, economic benefits and local impacts of the project throughout the term of the Agreement, analyze that data for project sustainability, and include that data and analysis in the Final Report (Task 1.6).

**The Contractor shall:**

- Collect data for at least six months on production, feedstocks, operation, fueling (amount of hydrogen dispensed per day and individual fueling events), fuel quality, maintenance, safety, economic benefits and local impacts. The data will be tabulated using forms from the current version of the “National Renewable Energy Laboratories Infrastructure – Quarterly Individual Site Template”. The form template can be found at:  
[http://hydrogenhighway.ca.gov/policy\\_funding/appendix\\_2\\_infrastructure\\_quarterly\\_template.xls](http://hydrogenhighway.ca.gov/policy_funding/appendix_2_infrastructure_quarterly_template.xls)
- Identify any current and planned use of renewable energy at the facility.
- Identify the source and feedstock used over the course of the Agreement.
- Describe any energy efficiency measures used in the facility that may exceed Title 24 standards in Part 6 of the California Code of Regulations.
- Provide data on potential job creation, economic development, and increased state revenue as a result of expected future expansion.
- Provide a quantified estimate of the project’s carbon intensity values for life-cycle GHG emissions.
- To the extent possible, describe how the project provided a measurable transition from the nearly exclusive use of petroleum fuels to a diverse portfolio of viable alternative fuels that meets California’s petroleum reduction and alternative fuel use goals.
- Describe how the project incorporated and achieved the sustainability goals of the Program as described in 20 CCR § 310.5, available at  
<http://www.energy.ca.gov/2008publications/CEC-600-2008-013/CEC-600-2008-013-F.PDF>.
- Compare project performance and expectations from the beginning of the project with actual project performance and accomplishments. Explain variances between expected and actual performance in the narrative of the Final Report, if any should occur. This analysis will be used to evaluate the project’s success for the Program.

**Deliverables:**

- None. Data and analysis from this task will be included in the Task 1.6 Final Report

## SCHEDULE OF DELIVERABLES AND DUE DATES

<b>Task</b>	<b>Deliverable(s)</b>	<b>Due Date</b>
1.1 Attend Kick-off Meeting	<ul style="list-style-type: none"> <li>Conceptual Design Specifications and Drawings</li> </ul>	3 working days before meeting
1.2 CPR Meetings	<ul style="list-style-type: none"> <li>CPR Report(s)</li> </ul>	15 working days before CPR meeting
1.3 Final Meeting	<ul style="list-style-type: none"> <li>Written documentation of meeting agreements</li> <li>Schedule for Completing Close-out Activities</li> </ul>	3 working days after meeting
1.4 Monthly Progress Reports	<ul style="list-style-type: none"> <li>Monthly Progress Report(s)</li> </ul>	15th day of each month
1.5 Deliverables and Deliverable Due Dates	<ul style="list-style-type: none"> <li>None</li> </ul>	N/A
1.6.1 Final Report Outline	<ul style="list-style-type: none"> <li>Draft Outline of Final Report</li> <li>Final Outline of Final Report</li> </ul>	8/30/2012 9/30/2012
1.6.2 Final Report	<ul style="list-style-type: none"> <li>Draft Final Report</li> <li>Final Report</li> </ul>	11/30/2012 1/15/2013
1.7 Electronic File Format	<ul style="list-style-type: none"> <li>Letter requesting exemption from electronic file format (if applicable)</li> </ul>	90 days before submitting deliverable
1.8 Manage Subcontractors	<ul style="list-style-type: none"> <li>Draft competitive bid document(s)</li> <li>Notification of new subcontractors(s)</li> <li>Copy of subcontracts</li> <li>Subcontractor budgets</li> <li>Subcontractor certification(s)</li> </ul>	8/30/2011 10/31/2011 11/30/2011 11/30/2011 11/30/2011
2. Procure and Accept Delivery of Hydrogen Equipment	<ul style="list-style-type: none"> <li>Schedule of Values and Deliverables</li> <li>Copies of POs</li> <li>Copies of receipt documents</li> <li>Copies of warranty documents</li> <li>Notification of testing</li> </ul>	10/31/2011 11/30/2011 11/30/2011 11/30/2011 1/15/2013
3. Engineering and Final Design	<ul style="list-style-type: none"> <li>Copy of detailed plans and specifications</li> <li>Schedule for obtaining permits</li> <li>Copy of permit set</li> <li>CPR report</li> </ul>	12/31/2011  10/31/2011 11/30/2011 15 working days before CPR meeting
4. Construct Hydrogen Station	<ul style="list-style-type: none"> <li>Draft Gantt chart</li> <li>Final Gantt chart</li> <li>Notice of Station Construction Completion</li> </ul>	1/24/2012 1/31/2012 12/31/2012
5. Data Collection and Analysis	<ul style="list-style-type: none"> <li>None</li> </ul>	N/A